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10/762,559

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EXAMINER

MCGUTHRY BANKS, TIMA MICHELE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,559	Applicant(s) TAKADA ET AL.	
	Examiner TIMA M. MCGUTHRY-BANKS	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,9,11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9,11 and 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1, 5 and 9 are currently amended, Claims 2, 4, 6, 8, 10, 12, 20 and 21 are cancelled, and Claims 3, 7, 11 and 13-19 are as previously presented.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

Claims 3, 7, and 11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Independent Claims 1, 5, and 9 recite “wherein the steel is devoid of Cr, Cu, Ni and Al;” however, dependent claims 3, 7, and 11 recite the addition of Al.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

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Claims 1, 3, 5, 7, 9, 11 and 13-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 5 and 9 contain a steel product with the following formulas that includes Cr:

$$C_{eq} = C + 0.07 \times Si + 0.16 \times Mn + 0.20 \times \mathbf{Cr} + 0.72 \times Mo$$

$$f \text{ value} = 2.78 - 3.2 \times C + 0.05 \times Si - 0.60 \times Mn - 0.55 \times Cu - 0.80 \times Ni - 0.75 \times \mathbf{Cr}$$

(emphasis added). However, Claims 1, 5, and 9 later state “the steel is devoid of Cr ...” To require an element in one part of the claim and then provide a negative limitation for that element in another part is indefinite.

Claims 3, 7, and 11 include an element that had a negative limitation in the parent claims. To provide a negative limitation for an element in a parent claim and later provide the same element as an optional component is indefinite.

Examiner's Comments

For purposes of examination, the examiner is analyzing the claims in two different ways. The first analysis is based on Claims 1, 5, and 9, wherein the steel is devoid of Cr, Cu, Ni and Al and the dependent claims do not include Al. The second analysis is based on the inclusion of Al in both the independent claims and dependent claims. Applicant will need to clarify the dependency of the claims and inclusion/exclusion of Al and Cr in light of the claim objections and rejections under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 5, 7, 9, 11, and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eberle et al (US 2001/0015245 A1).

Eberle et al teaches a steel pipe with the following composition [0014] with respect to the claims in wt%:

Element	Claims 1, 5, and 9	Eberle et al
C	0.45-0.55%	0.05-0.8%
Si	0.21-0.45%	≤ 1.0%
Mn	0.50-1.20%	0.2-3.0%
P	0.025% or less	≤ 0.100%
S	0.025% or less	not taught
Mo	0.15-0.25%	≤ 0.500%
B	0.0005-0.005%	≤ 0.100%
Ti	0.005-0.010%	≤ 0.200%
N	0.015% or less	≤ 0.100%

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. Regarding the formulas in Claims 1, 5, and 9, the range taught by Eberle would meet the formula limitations since the range is broader than that claimed. The microstructure is composed of contain ferrite-pearlite-bainite [0080]. Regarding Claims 3, 7 and 11, the steel can also contain ≤ 0.100% Nb [0014].

Further regarding Claim 5, the steel is hot rolled [0080]. Regarding the ferrite area ratio in Claims 5 and 13, Eberle et al teaches that the relative amount of the phases depends essentially on the initial chemical composition of the steel and on the particular conditions under which the various steps are performed [0042]. The steel composition of Eberle et al meets the claimed conditions for a 40% ferrite area ratio. Eberle et al is silent with respect to the other properties

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claimed as in Claims 5, 14-16 and 18. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01. If the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP § 2112.01. Further regarding Claims 9, 17 and 19, the fabrication limitation and wear loss correspond intended use; language in the claim that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation, for example statements of intended use or field of use. See MPEP § 2106.

Applying the second analysis, Eberle et al teaches Cr and Al as optional elements at $\leq 0.200\%$ and $\leq 0.100\%$, respectively.

Claims 1, 3, 9, 11, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinaga et al (US 6,632,296 B2).

Yoshinaga et al teaches a steel pipe with the following composition (column 2, lines 9-16; column 3, line 8; and column 3, lines 30-43) with respect to the claims in wt%:

Element	Claims 1 and 9	Yoshinaga et al
C	0.45-0.55%	0.0001-0.50%
Si	0.21-0.45%	0.001-2.5%
Mn	0.50-1.20%	0.01-3.0%
P	0.025% or less	0.001-0.2%
S	0.025% or less	0.05% or less
Mo	0.15-0.25%	0.001-2.5%
B	0.0005-0.005%	0.0001-0.01%
Ti	0.005-0.010%	0.2% or less
N	0.015% or less	$\leq 0.01\%$

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In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. The structure of the steel pipe comprises ferrite and a secondary phase of bainite and pearlite (column 12, lines 48-59).

Regarding the formulas in Claims 1 and 9, the range taught by Eberle would meet the formula limitations since the range is broader than that claimed. Regarding Claims 3 and 11, the steel pipe can also contain 0.15% or less Nb or 0.001-0.5% Zr (column 3, lines 9 and line 30).

Regarding Claim 16, the heating temperature limit is preferably 1050 °C (column 16, line 39).

Yoshinaga et al is silent with respect to the other properties claimed as in Claims 14-16 and 18. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01. If the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP § 2112.01. Further regarding Claims 9, 17 and 19, the fabrication limitation and wear loss correspond intended use; language in the claim that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation, for example statements of intended use or field of use. See MPEP § 2106.

Applying the second analysis, Yoshinaga et al teaches 0.01-2.5% Al (column 2, line 38) and 0.001-2.5% Cr (column 3, line 37).

Claims 1, 3, 9, 11, 13, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ochi et al (US 6,602,359 B1).

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This rejection is based on the second analysis. Ochi et al teaches a steel bar or wire rod with the following composition (abstract; column 2, line 63; column 5, lines 16 and 17) with respect to the claims in wt%:

Element	Claims 1 and 9	Ochi et al
C	0.45-0.55%	0.1-0.65%
Si	0.21-0.45%	0.01-0.5%
Mn	0.50-1.20%	0.2-1.7%
P	0.025% or less	0.035% or less
S	0.025% or less	0.01-0.15%
Mo	0.15-0.25%	1% or less
B	0.0005-0.005%	0.005-0.07%
Ti	0.005-0.010%	0.2% or less
N	0.015% or less	0.01% or less

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. The steel bar comprises ferrite, pearlite and bainite (column 2, lines 44-48). Regarding the formulas in Claims 1 and 9, the range taught by Ochi et al would meet the formula limitations since the range is broader than that claimed. Regarding Claims 3 and 11, Ochi et al teaches 0.015-0.1% Al (column 2, line 36) and 2% or less Cr (line 62). Regarding Claim 13, the ferrite ratio is 10% or less (column 3, lines 29 to 30). Ochi et al is silent with respect to the other properties claimed as in Claims 14-16 and 18. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01. If the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP § 2112.01. Further regarding Claims 9, 17 and 19, the fabrication limitation and wear loss correspond intended use; language in the claim that suggests

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or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation, for example statements of intended use or field of use. See MPEP § 2106.

Claims 1, 2, 5, 7, 9, 11, and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanisawa et al (US 6,547,890 B2).

Kanisawa et al teaches a steel wire rod with the following composition (abstract; column 4 to column 5) with respect to the claims in wt%:

Element	Claims 1, 5, and 9	Kanisawa et al
C	0.45-0.55%	0.1-0.5%
Si	0.21-0.45%	0.01-0.5%
Mn	0.50-1.20%	0.3-1.5%
P	0.025% or less	0.035% or less
S	0.025% or less	0.035% or less
Mo	0.15-0.25%	0.1-1.0%
B	0.0005-0.005%	0.005% or less
Ti	0.005-0.010%	0.005-0.04%
N	0.015% or less	not taught

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. The steel rod comprises ferrite, pearlite and bainite (Claim 2, lines 54-57). Regarding the formulas in Claims 1, 5 and 9, the range taught by Ochi et al would meet the formula limitations since the range is broader than that claimed. Regarding Claims 3, 7 and 11, the steel can also comprise 0.005-0.1% Nb (column 2, line 54).

Further regarding Claim 5, the steel is hot rolled (column 6, line 1). Regarding claims 5 and 15, the material hardness is controlled to 250-700 Hv (column 4, lines 21 and 22). Further regarding Claims 9, 17 and 19, the fabrication limitation and wear loss correspond intended use;

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language in the claim that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation, for example statements of intended use or field of use. See MPEP § 2106. Ochi et al is silent with respect to the other properties claimed as in Claims 5, 14-16 and 18. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.01. If the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP § 2112.01.

Applying the second analysis, the steel may also comprise 0.2-2.0% Cr (column 2, line 44) and 0.2% or less Al (column 5, line 14).

Response to Arguments

Applicant did not address the objections to Claims 3, 7, and 11 or the amendment to the Ti upper limit concentration.

The rejections under 35 U.S.C. 112, first paragraph for enablement and written description are withdrawn.

Applicant's arguments with respect to the claims in view of the amendment have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eberle et al (US 6,395,108 B2) teaches a flat product made of multiphase steel. Watari et al (US 5,922,145) teaches steel products for use in transportation machinery. Bellus et al (US 5,820,706) teaches s steel composition having high properties for automobiles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
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/T. M. M./

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